

Waverly 1904

Carroll 1904

Confals -

Ziffin - Omaha -

Hills - 1904

Turkey co 1904

Harrison co. - 1904

Loveland - 1904

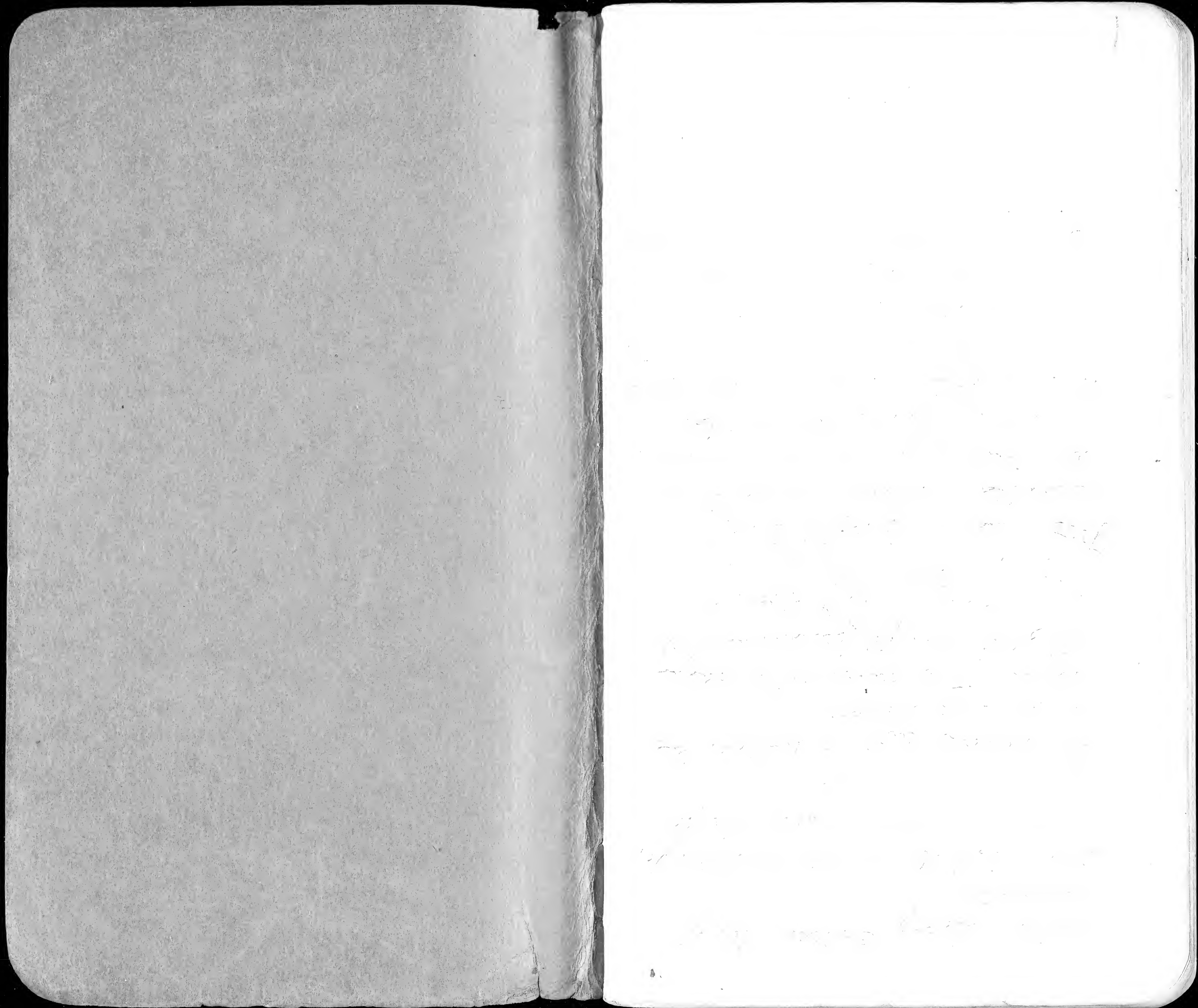
Arion - 1904

Monroe Sup.

Carroll to Harlan

Engle from to Omaha  
1904





Obežník vzhled v. S. v.

Pr. Vapení v. S. v.  
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Prati platte, v. S. v.  
 platte, v. S. v.



4

5



Prairie - Hills - July 2 - '05

- fl. ~~Asclepias~~  
 fl. narrow  
 fl. Rudbeckia hirta -  
 fl. Agropyrum -  
 fl. Fragaria virginica -  
 fr. Potentilla canadensis -  
 fl. Polygala sanguinea -  
 fl. Lobelia spicata -  
 fl. Rumex acetosella -  
 fl. Pycnanthemum <sup>flexuosum</sup> leucophyllum  
 fl. Oenothera aculeata -  
 fl. Erigeron <sup>canadensis</sup> (short hairs)  
 fl. ~~Panicum~~  
 - Oenothera lutea -  
 - Salix ~~fragilis~~  
 - Lespedeza capitata  
 fl. Rosa arkansana  
 fl. Ceanothus americanus  
 fr. Smilacina stellata  
 - Comandra umbellata  
 fl. Asclepias purpurascens  
 - Petalostemon violaceus  
 fr. Aschra hispida

- Lepachys pinnata  
 fr. Dodonaea viscosa  
 - Euphorbia corollata  
 fr. { Ceramium maritimum  
       Zilla  
       Bass wood  
       Corylus  
       Hazel  
       Vitis  
       Wild grape  
       Amelanchier  
       Dogwood  
 }  
 - Pycnanthemum alba  
 - Veronica virginica  
 - Helianthus scaberrimus  
 - Baptisia (smooth)  
 - Monarda scabra  
 - Coriopsis hirta  
 part fr. Krigia -  
 - Galium - ?  
 fl. Anemone canadensis  
 fl. Lilium philadelphicum  
 fr. Polygala senega  
 fr. Pedicularis canadensis  
 fl. & fr. Phlox pilosa  
 - Smilax herbacea  
 fr. ~~Aschra~~ aurea



fl. *Specularia perfoliata*  
 — *Artemisia ludoviciana* —  
 — *Lactuca* —

Old man's creek

Alluvial timber July 2-04

*Quercus rubra*  
 " *velutiana* —

*Sparganium*  
~~Sparganium~~

*Rubus villosus* —  
~~Drumstick~~  
~~Walnut~~ —

*Pyrus ioensis* —  
~~Carya~~  
~~White Hickory~~  
~~Petula~~  
~~Black Birch~~

fl. & fr. *Cornus amomum* 2

*Salix cordata* —

~~Ulmus~~  
~~White Elm~~ —

*Platanus*  
~~Sycamore~~ —

~~Alder~~  
~~Reddy wood~~ —

*Fraxinus americana* —

*Carya amara* —

*Quercus palustris* —

" *platanoidea* —

*Crataegus mollis* (small, large)

" *coccinea* —

" *crus galli* —

*Quercus macrocarpa* —

re " *imbricaria*



- 26 - *Rhus radicans*  
*Vitis rotundifolia*  
*Ulmus fulva*  
*Fraxinus viridis* (?)  
30 *Cornus paniculata*  
*Sambucus hispida*  
*Menispermum canadense*  
*Sambucus canadensis*  
*Prunus americana*  
35 *Rosa*  
*Ampelopsis quinquefolia*  
*Dalia nigra*  
*Acer*  
*Sophora*  
*Quercus alba*  
40 *Zanthoxylum americanum*  
*Populus tremuloides*  
*Celtis occidentalis*  
*Lilium americanum*  
*Eurogynis atropurpurea*  
*Juglans cinerea*  
45 *Morus rubra*  
*Ribes <sup>gracile</sup> coccineum*  
*Populus monilifera*  
*Prunus americana*

along C.R. & P. road.

July 14-1904 - Prairie











23  
 Prairie ridges in woods  
 May 16 - 1904

*Accipiter velox* —  
*Euphorbia corollata* —  
*Geranium leucopetalum* —  
*Oxybaphus myrsinifolius* —  
*Petalostemon candidum* —  
*Mimulus lewisii* —  
*Brainerdia*  
*Echinacea angustifolia* —  
*Ruellia ciliosa* —  
*Aster novae-angliae* —  
*Erigeron cylindricus* —  
*Achillea millefolium* —  
*Comandra umbellata* —  
*Kuhnia eupatorioides* —  
*Silphium integrifolium* —  
*Lepachys pinnata* —  
*Petalostemon violaceus* —  
*Coccyzus palmarum* —  
*Accipiter* <sup>floridana</sup> ~~velox~~ *pohli* —  
*Rudbeckia hirta* —  
*Ceanothus americanus* —  
*Rosa woodsii* (?)  
*Hemlock* *hispida* —  
*Dodecatheon meadia* —



*Leptogaster capitata*

En: ~~\_\_\_\_\_~~ \_\_\_\_\_

Salisbury

Chloro nitro

Am. J. 1891

*Antellaria hirsuta*

*Amphibia*

*azur*

John A. ...

*Epilobium canadense*

12/10/1919

*Tamodia integrissima*

1893-1894

*Hydrocotyle Pteris*

alluvial - sandy flat

*Betula nigra*

Shirley M. Jones

12

*[Faint handwritten notes]*

St. Louis, Mo.

1000

*[Faint handwritten text]*

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

*Chrysomelidae*

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

2011-12-22

1947

167

William F. Lawrence

and

Cell.

bleibst du da

Water Grape -

Charles

Predera



~~Sambucus canadensis  
 Ribes gracilis?  
 Amelanchier macrocarpa  
 Corylus  
 Castilleja  
 Camptocarpus  
 Juniperus  
 Cryptantha  
 Chamaenerion  
 Rhus v. latifolia  
 Equisetum~~

Oct 8-1904

Watersloo - heavy trip  
 First cut out on electric  
 line towards Glasgow  
 shows only Devonian  
 drift.

This is the only cut of  
 consequence between Watersloo  
 & Glasgow

The first cut beyond  
 Glasgow is Devonian  
 with about a foot  
 of fine black soil.

The 2<sup>nd</sup> cut is same.

3<sup>rd</sup> cut beyond Devonian is  
 about same.

4<sup>th</sup> cut W. of Devonian

W. side of cut.

soil - 6 ft.

Devonian drift 4 ft. a  
 200 ft long

of boulders!

The rock is concentrated along

line p. (See photos)

S. side of cut about same. See sample  
 & soil.

The 2<sup>nd</sup> long cut W. of  
 Devonian is just W. of  
 cut p. - the same, - &  
 shows this

the 1<sup>st</sup>

the 2<sup>nd</sup>

Devonian (Karnian)  
 (see photos - see end of page)  
 (the right about 3 ft. of  
 drift is in layer 3)

The 5<sup>th</sup> cut about 5 ft.

1. The layer is in the same  
 position as the previous one  
 in the same position as the previous one

2. The layer is in the same  
 position as the previous one  
 in the same position as the previous one

3. The layer is in the same  
 position as the previous one  
 in the same position as the previous one

4. The layer is in the same  
 position as the previous one  
 in the same position as the previous one



This road is through a goodly small  
about 2 miles between Kansas & Iowa  
W. side

graphite



The Pineau Tapers to SW, so  
that it is harder to find  
than W. end there are pockets of red sand  
in blue earth (in it, Pineau, 1-1)

The Pineau has a good  
many boulders, some large.  
Some are nicely flamed.

The big cut (3rd) 2 miles  
W. of Lyons for 1/2 mile  
a mile (1/2 mile) from No. 2,  
shows no fossils.

Soil 1-2 ft  
about 1 ft  
brown - yellow

Blue (Pineau) clay & pebbles  
2-4 ft

yellow, hard drift  
with pebbles.

The line between the  
lower yellow layer &  
this layer is sharp & is  
overlaid, the blue  
shades (or mixes) upward  
with the upper yellow layer.  
(see samples of clay)

The same is noticeable  
on the N. side of  
cut.

The blue layer has few  
pebbles in it, & on  
one place shows also  
quite lower yellow layer.  
In the lower yellow layer  
I found an occasional  
very rotten dark granite  
pebble or small boulder,  
but most of the pebbles  
were pretty fresh.

The blue layer has very  
few pebbles in it, & they  
often pretty fresh.  
The pebbles in the part  
are fresh.

Is not the whole part  
merely the same worked  
over by the glacial ice?  
The west end of the big  
cut shows a sort of  
transition out of the

blue layer, & its mixing  
(inter laminating?) with the  
upper & lower yellow layers.  
The next rocky cut, just  
beyond, shows almost same  
the next one (with overhead  
rocks) just beyond, shows  
blue layer, with soft, upper  
part being only a couple  
of feet. The same is

the same at the E-  
end. But in between it  
is higher & a more green  
2 ft. The only a few inches.

It is all irregular &  
broken above, but the  
is not so, but here  
are large masses here  
& there.

This is on the side. On S.  
side the blue layer  
thins out even more, &  
eventually disappears to  
west.



at The next northern bridge  
there is another cut (6)  
which at E end shows  
blue clay at base +  
mass on it, but  
just beyond bridge the  
blue clay runs up from  
base to within 6 or 8 ft  
of top of it.

The cut runs irregularly  
along the next northern  
bridge.

Just beyond 2<sup>nd</sup>  
bridge on N side  
there is some  
limestone exposed  
by way of the cut  
(see piece)

Blue clay is exposed  
at base on N-  
side, & contains  
blocks of weathered  
limestone.

This cut, or rather a  
series of smaller (connected  
with it) runs from W  
end into bed rock which  
has a very generally layer  
just on it in place.

The drift practically  
runs out at E end.  
The cut at E end may  
be practically all in rock  
in middle of E end.  
Cut 7 at 9<sup>th</sup> northern  
bridge, is through

Both 7 & 8  
have top drawing of  
red 1-2 ft of 7  
on top of 8. This is  
of drift.

Next cut northern bridge  
at base of bed rock -  
limestone with  
at E end of the cut  
right by river. There  
is limestone road

W

Laminated sand  
as follows  
Rock

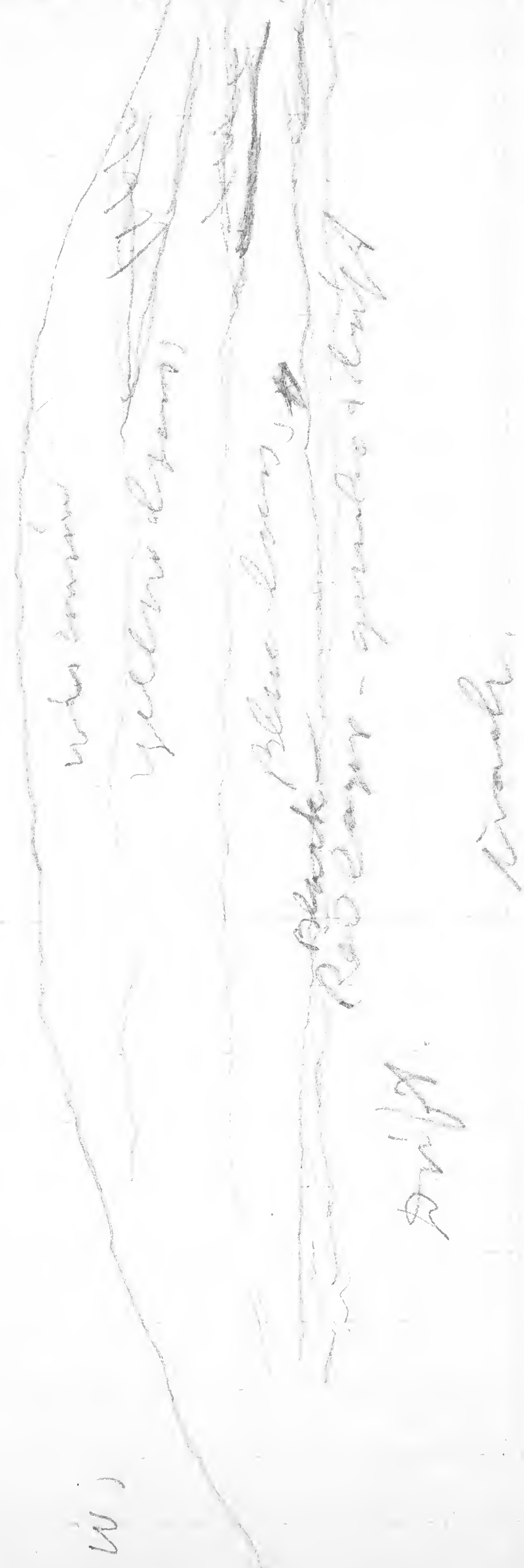
All the way to Denver  
in part covered with gravel,  
the surface is smooth-  
like Kansan - but  
is evidently to  
underlying rocks

In Madison Twp  
5 of J. W. Hays, there  
has been a permanent  
pond on high ground.

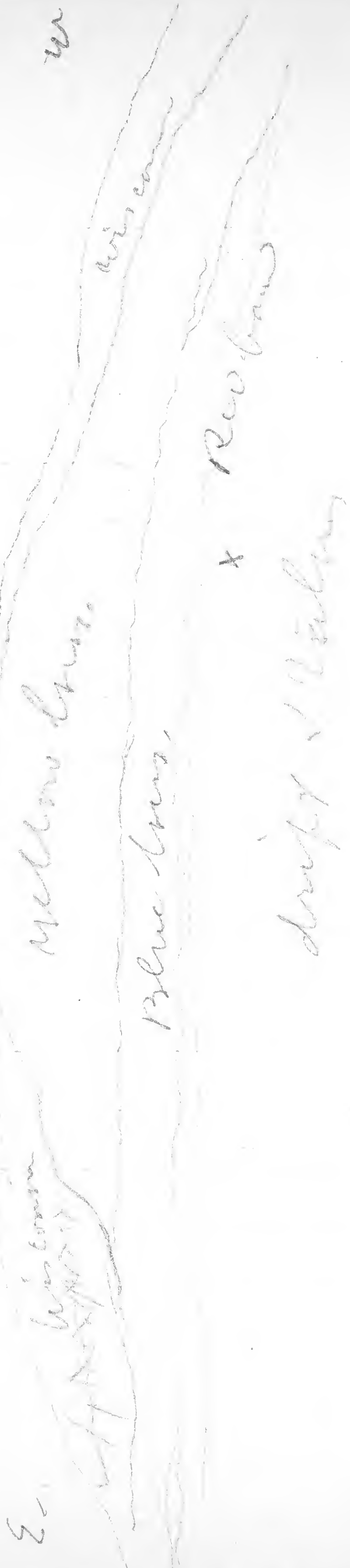




W  
C. G. W. cont. E. of  
cannel  
Oct 3 1904



This is not all clear - as the wash & plants show it is.



about at x from base of drift 3 ft  
yellow  
blue  
granite



The yellow loess (upper) shows  
the same lamination  
parallel to face of bank,  
as if the whole thing  
had been settling.

The lower iron loess in  
blue loess shows  
lamination in places  
which looks like water  
lamination.

The end of a cross ridge



12 ft. of yellow loess

The long low cut bank  
is in drift - (the  
lower drift) with  
about 2 ft of black  
soil on it.

The bluff on N. side  
is 15 or 12 ft higher than  
on S. side.  
On N. side, drift is exposed  
about 12 ft. It is  
much like Lovelock - heavy  
small pebbles, but  
probably alluvial.

On N. side the  
lower part of gravelly  
layer looks exactly  
like Lovelock gravel  
or has a few pebbles.

See notes  
30 pages further  
on

Carroll co  
Sep 30-1904

1<sup>st</sup> cut E of Lanestrow -  
about  $\frac{1}{2}$  mi. east.  
20 feet deep, & over  $\frac{1}{2}$  mi  
long. Shows light Wisconsin  
drift throughout - Very  
few larger boulders appear.  
On E. side near South end  
of cut, there is a narrow  
band (see figure) made  
up of fine material, occasionally  
running into sand, which  
is somewhat loess like, but  
more like calc. laid stuff.  
It has an irregular <sup>very</sup> dark  
(iron?) band just above. The  
drift above & below seems  
to be Wisconsin, with  
a little more clay above.

For W. side we next find

Wisconsin

clayey sandy bands

Wisconsin

see preceding page



On to see the cut  
shows a curious band  
of loess? material. band  
with iron - The loess  
is bluish - see photo.



a - top mostly fine sand,  
hard. There are a few  
small pebbles - 1/2 in.

The layer is about 4 ft deep  
b. is about a foot of  
transition - mixed clay  
+ sand - hard.

d. is 3 ft or more thick &  
is loess? with band 1

(The red bands in d are more  
sandy - much as in places.)  
iron. I saw fragments of  
shell which may have  
come from this, - they were  
on surface -  
e) is a band of red (dark)  
sand - 3/4 - 2 in wide  
f. - is mixed clay & sand  
grading into material  
with pebbles - Wisconsin  
drift -

The loess layer d  
stands vertically, - it shows  
in some places very distinct  
lamination.

The layer d has numerous  
small nodules (see spec.).  
This is evidently bottom of  
old pond - It runs up  
and out so. It ends  
(see diagram on next page.)

*[Faint handwritten notes, possibly "d...".]*

1890



This was evidently old  
found into which dust &  
sands were blown &  
washed from higher  
ridges.

The exposed bottom of pond  
is about 275 long. It  
is irregular.

There are a few small  
pebbles above loess, but  
these could have been blown  
along surface of loess.

Peat is now all  
through - scattered - the  
loess - see spec.

See spec. of clay, nodules  
& tubules.

The depth of the cut at  
the deepest place is about  
22 ft. - this along  
where pond was.

Either side of the pond  
or edges of the pond  
loess. The Wisconsin drift  
comes right up to the  
hard sand layer. No  
loess intervenes.

As far as I could see  
the loess was in all  
Wisconsin. The talus  
covers about 1/2 of it,  
but as far as I could  
see it is Wisconsin till  
(see large boulders  
1 ft. -)

The country to the sides  
of this ridge is flat.

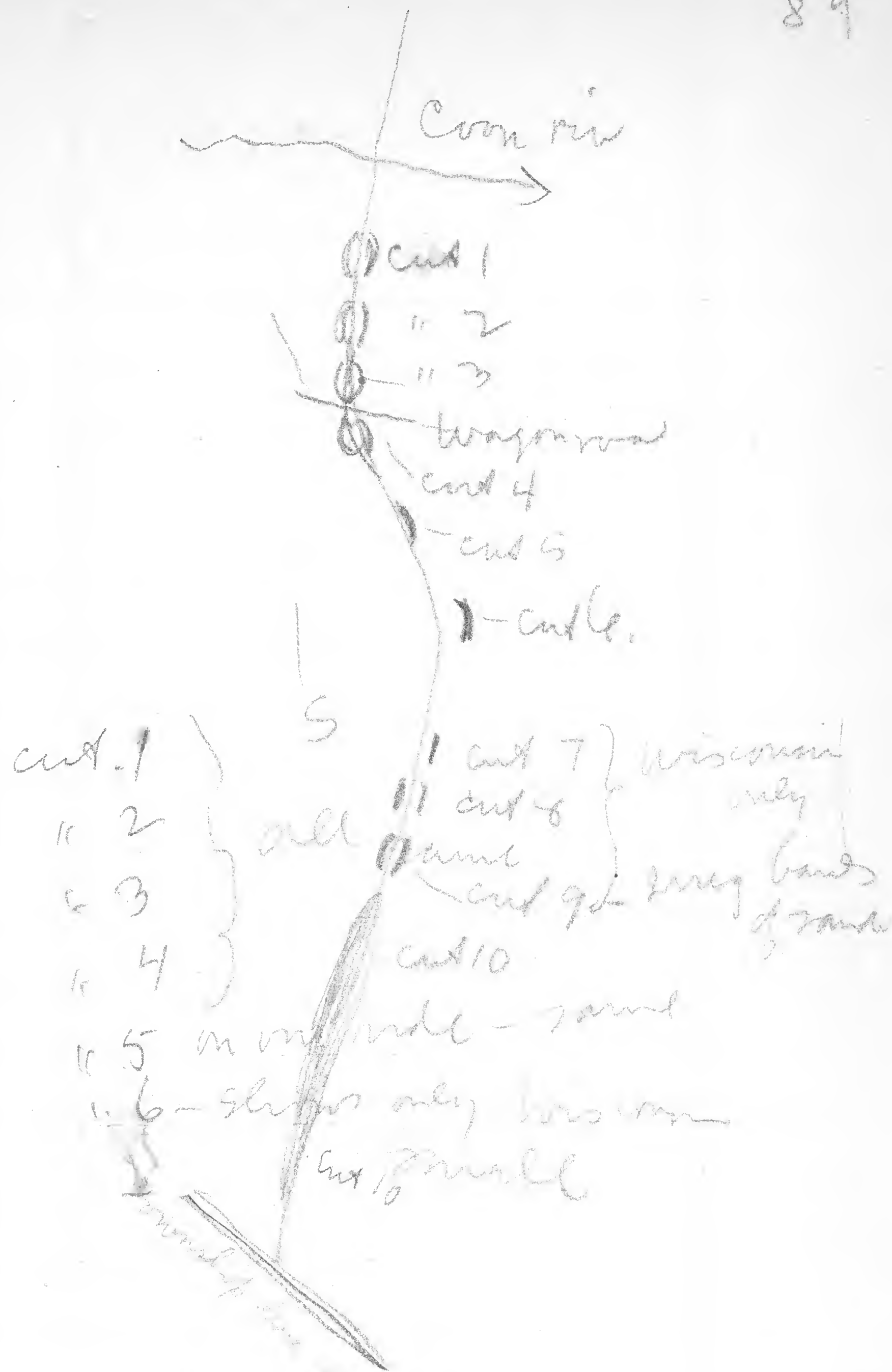
The 1st cut. S. of Corn  
river. (See photo - looking  
E. or N.)

This is over 30 ft. deep  
of shales - Wisconsin  
(yellow) below, &  
the blue drift, Kansan  
below.



In places it appears that  
the yellow & blue mingle  
& interstratify, but there  
are thick - & they  
into some.

Down narrow fissures  
zone between the two  
drifts. No. 10.  
Wisconsin is 6 or 8 ft deep.



No 10 is a low long cut. In  
the lower part it shows sand & there  
a bit of Kansan. In places  
there is hard fine sand above  
the Wisconsin, with a distinct  
ferruginous zone between.



In a number of places  
the deposit is clayey &  
the weathered surface  
shows fine stratification.  
It is wavy & regular.

The cut is partly overgrown  
& slumped, but what  
shows is mostly Wisconsin  
the sandy, silty, blue

All the way to Lidderdale  
there are low cuts in  
the Wisconsin Plains.  
Most of them show from 1  
to 2 feet of fine black  
soil on top.

Lidderdale is on a slight  
swell in the Wisconsin prairie,  
the RR. dropping both  
ways. It is, however,  
so flat that swamps  
are all around the  
village.

As I look toward Carroll  
(smoke stacks are visible from  
depot at Lidderdale)  
it is evident that a low  
ridge extends between  
Carroll & Lidderdale.  
The RR. drops toward  
the ridge & then rises  
again.

Oct. 1-1904

Between Lynn &amp; Me.

Valley - on N. side, is  
a large archway, - 2  
ridges running down  
the general slope are  
common, as are the  
intermediate & adjoining  
valleys. The trees grow  
top of the general slope  
& on tops of both of the  
ridges, but thin &  
small, - & are not extensive.

Lovelace, Ia. Oct. 1-04  
Bluff N. of town & d  
road. Below river is  
base of bluff between it  
& Manges river, which is  
probably 12 ft. above road.

At S. end there is a  
dip. Part of a deposit  
which is clayey, full of  
shells (brachiopods) & other  
mollusks. It is the  
face of S. end of exposure  
& is 100 yds. or more off  
the foot of the bluff & is a  
yellowish color.

Below at base, see they  
are very fine & large. It  
contains some very large shells,  
some 7-8 in long. These  
form a layer & some of  
the shells are in draft,  
but most are just above - only  
in very lowest part of layer.  
There are no shells in this lower layer.



The drift is bluish & yellow - rather mixed & mottled. Some of the lower layers are all over a light grey, but there are also some of a darker grey. The whole is mixed with some small pebbles. Some of the pebbles are of a light grey, some of a darker grey, some of a light brown, some of a darker brown. Some of the pebbles are of a light grey, some of a darker grey, some of a light brown, some of a darker brown. Some of the pebbles are of a light grey, some of a darker grey, some of a light brown, some of a darker brown.

No pebbles are seen in the drift, all the way out to the place I was standing. I saw some in the overwash, from the level above. The greater part of the drift is yellowish, with a bluish brown tint, and is flaked & scales off all over the

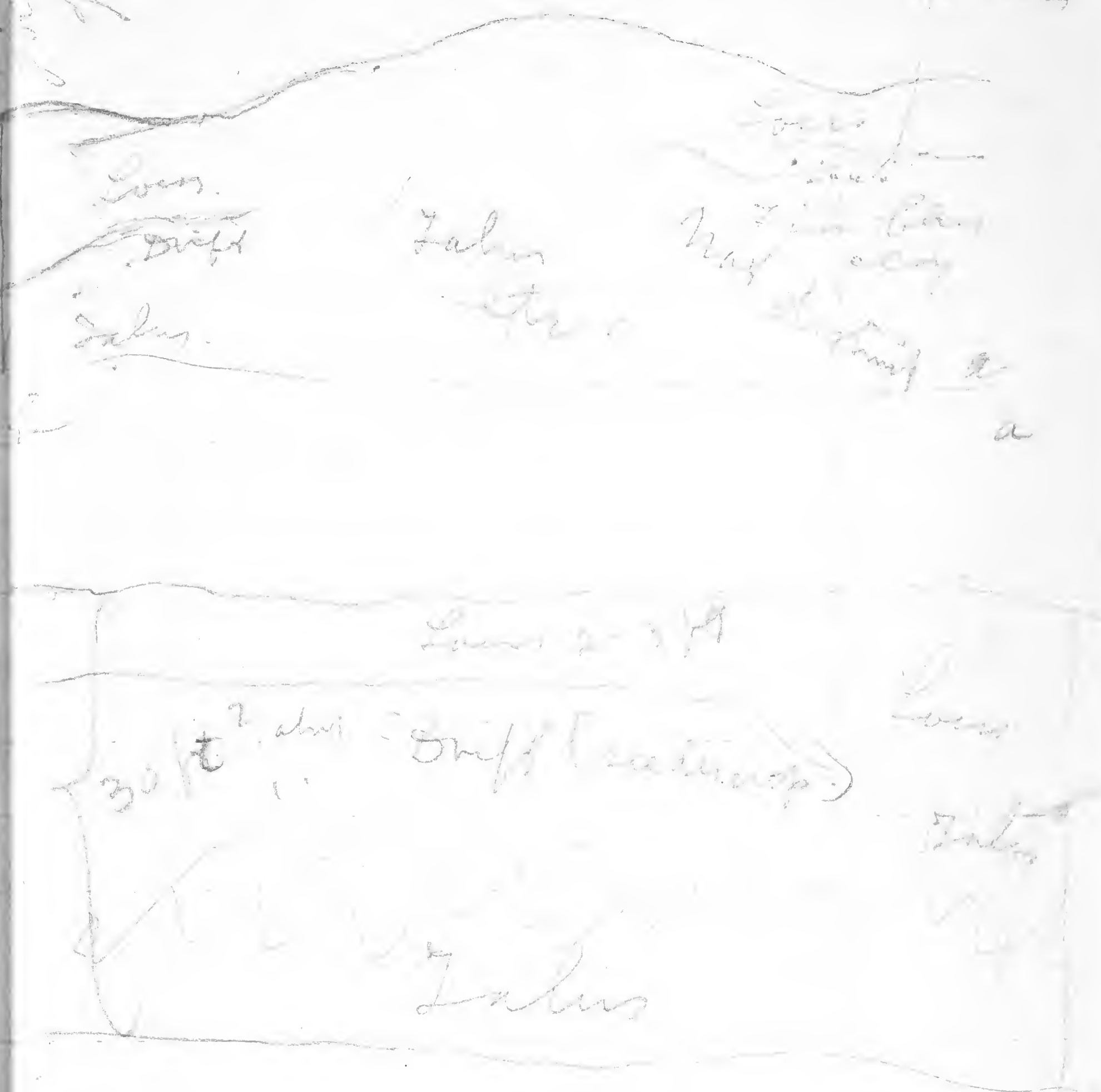
face, while the lower beds virtually into layers which present smooth faces. The drift is all virtually marked by soft weathering iron following the surface. This lower part of the drift looks like brown at all. The line between the drift & lower is a very distinct sharp, & sometimes only for a very short distance a few inches, or there any difficulty in finding out where the line is. The lower part of the drift is of a yellowish brown, & is flaked & scales off all over the face. (See map on next page)

a-b about 200 ft +  
 b-c " 150 ft.  
 c-d " 60 ft.  
 d-e " 150 ft.  
 e-f "

The line adjacent to the  
 junction of M. 21 (road)



some single  
 of mass



(over)

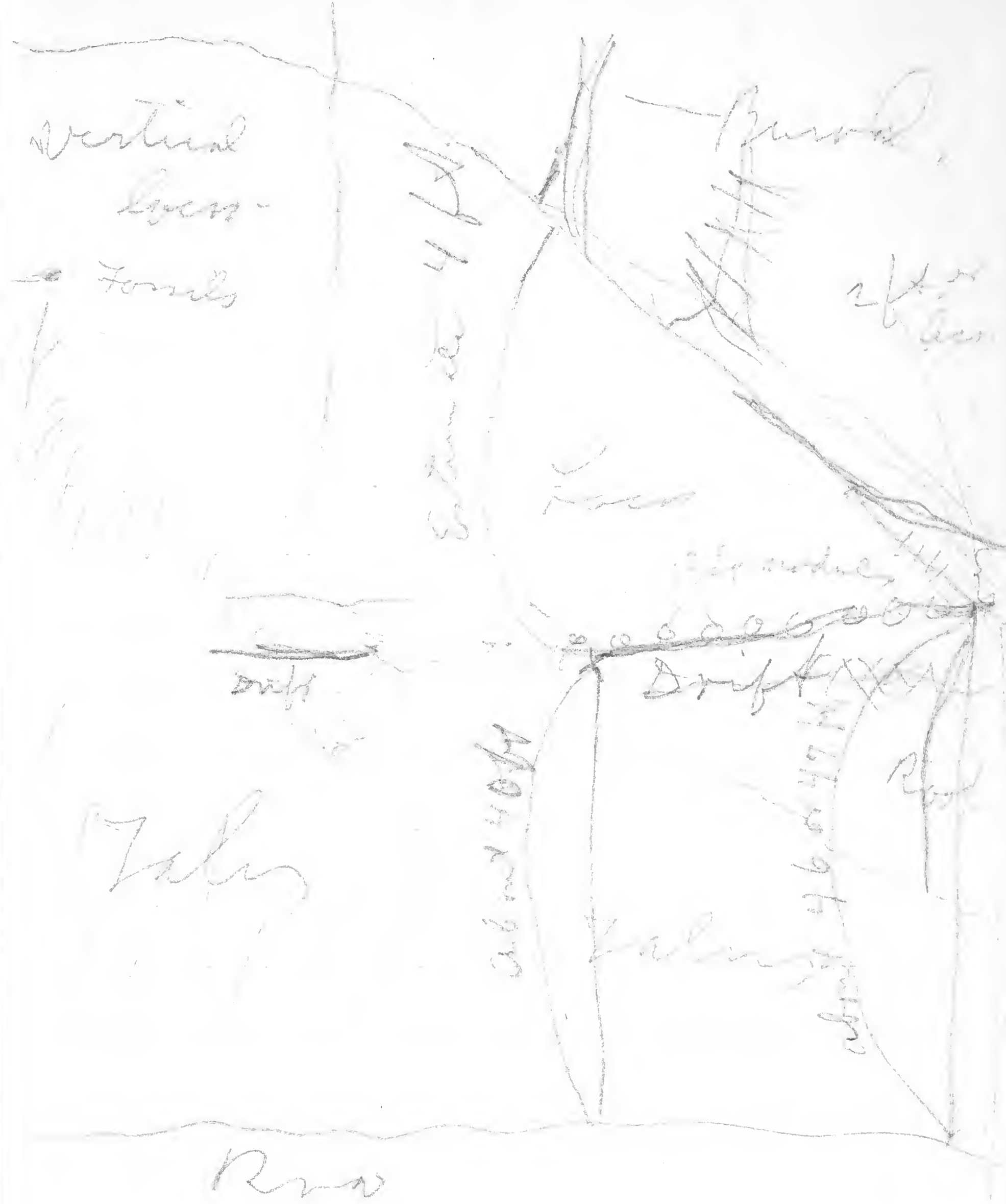


Cottamunt



From points in place of  
about a good many  
localities in the  
(see how spec. of clay)  
is fine.

d



The most pure form  
c-d.



The smaller N. exposure  
also shows drift clearly  
below level.

I should estimate at  
least 60 ft of ice  
in the thickest place.

The hill & the N. rise  
probably 40 or 50 ft  
higher than the  
highest level exposure.  
This as it appears from  
train.




Oct 2, 1904  
Loveland, Ia.

Black shales  
with fossils & small  
round nodules

about 70 ft carbonaceous  
above band. 1/4 in thick  
Lower fossils -  
larger & gets redder  
below

There were fossils in the  
carbon band - fragments -  
Identification only *Succinea*  
*elliptica*?

In the place there  
are shavings  
of one thing with  
lower below  
redder brown as at  
(a)



There are no pebbles in  
the upper, fossiliferous  
part of lower band -  
In places there is no  
carbon, only cleavage line  
shows. - The black band  
also doubtless in the place

The just below, carbonaceous  
just above has more  
iron streaks - Below  
it is almost devoid of them  
above a few others  
green a foot above carbon  
Below carbon about 3-5  
in.

The lower band is redder  
on the exposed surface,  
but darker (darker) on  
fresh cut. Upper is  
lighter bluish yellow &  
softer. (see nodules  
bottom of page)

There are fewer fossils in  
the upper zone & I  
identified only the  
large *Succinea* & *Helderia*

At 45 ft. the lower  
zone is hard & uniformly  
yellowish (darkish) with  
just occasional spots of  
lime & no iron.

(see sample of fossils  
marked lower part of  
upper zone)

Fossils abundant.

This zone is about  
18 to 20 ft. below carbon  
zone which extends  
across face of bluff

Below the zone is a  
layer of hard material  
(a little darker than zone)  
& it has a few pebbles

in its lower part very  
large nodules of  
iron - No fossils  
(see sample - my label  
says no pebbles - there  
are a few).

Below that is pebbly drift  
At very foot of bluff is  
a dark blue clay. Is  
this Kansan & that above  
Iowan or Wisconsin?

altitude -

Road 0

Top of drift 40 40

Place where I not sample -

pebbly clay 48 48

Lower part lower zone (fossils

& clay) 66 70

Upper part lower zone

(fossils & clay) 75 80

carbon line 78

(see sample)

more uniform color

40 ft.



(The carbon here must  
be about 85)  
The top of this bluff  
is 140 ft above  
road. To the  
N. the hill or bluff  
rises not less than  
50 ft. (more probably  
over)  
The upper layers  
are much more  
crumbly than the  
lower. The upper part  
I could see well that  
I was never very far  
modern than 5 minutes  
I found S. *hirsuta* at  
the very top &  
in chert in the lower  
loam or gravel &  
many crushed, especially  
in sand slits.

## Arion

A hill rises 150 ft  
above town to W. (or SW)  
The lower  $\frac{2}{3}$  ~~is~~  
drift just like that  
at Lonsdale (bluish,  
yellowish, & red concretion)  
A trench cut from  
top to bottom shows  
this well.

About  $\frac{1}{3}$  of the way  
down from the top  
begins, & thickens  
rapidly, as there at  
top, where 15 ft. cut  
was made, it was  
not fossiliferous.  
The loam is yellow, with  
nodules (concretions) (see  
samples) - but  
at top changes to  
man who dug it (loam)  
Fossils were abundant  
throughout especially in lower part.



(See Book f - p. 99) 109

Carroll Oct. 3 - 04  
C. & W. end E. of Carroll  
Runs etc.  
At W. end - S. side



A dark, fine  
(See sample) hard, nodular clay - hard - brown  
The base is blue, with  
large soft iron tubules (iron roots)  
and streaks of iron.  
Shells few & fragile.  
This has no mottled (yellow)  
lens



The lower part of the drift is very hard & contains many pebbles.

About 3 rods farther  
E. or S. side of  
exposed following.



Yellow loam

The upper part of loam has  
numerous small rounded  
iron concretions.

The lower part of drift  
has small pebbles.

The line between Wisconsin & Iowa is not sharp & there was certainly a mixing of materials, pebbles being found an inch or two in each corner. The upper 2 ft. of loam is yellow & may be only Wisconsin - but there are no pebbles. The lower part is very much like local sand hard pan.

The line between Wisconsin & Iowa is not sharp & there was certainly a mixing of materials, pebbles being found an inch or two in each corner. The upper 2 ft. of loam is yellow & may be only Wisconsin - but there are no pebbles. The lower part is very much like local sand hard pan.

In the upper part of the loam there are dark carbon like streaks or bands, with greenish & brown. In that in other places there is no brown. This shows down & all over the drift is quite lighter. Its upper part is red with iron.

about 3 rods still  
further E. the following:

W. side

the  
loam  
as before

black  
loam

drift

The drift below 2 ft gets  
yellow & white like  
that of level.   
Certainly the same.  
This drift has red  
angular boulders 4-8 in.  
a few of them, - just  
like level drift.  
Some shells in the loam.

Loam 3-4 ft. -

W. side 3-4 ft.

The W. side line is here  
clearer.

about middle of cut, on  
S. side: -

W. side of this corner  
less than 1 ft.

about 10 ft +

yellow loam with  
numerous iron streaks  
& black spots.  
Very fossiliferous  
& some fine

iron streaks 1 ft. 4-6 in.  
with large iron concretions  
especially at top, &  
two streaks of iron  
has curious vertical channels  
parallel to face of bank.

6-8 ft Black streaks - granular

marker drift  
like level



Agassiz

The drift is rather sharply  
set off from the gneiss  
layer, which here contains  
a few pebbles and in  
lower part of Lovell's gneiss  
some sample of each layer.  
Kept fossils separate, &  
picked up a lot from  
talus. There are undoubtedly  
from upper loam, as  
those of lower are too  
fragile to stand  
washing out.

Fossils are very abundant  
about the middle of the  
cut. Those from the  
end were mostly from  
blue loam. - ~~The~~

Some *Ammonia* is very abundant  
& *Ammonia obliqua*? is  
more common in the  
upper part of the yellow  
loam. Fossils there are  
more numerous in middle

(Look back 40 pp 115  
for con. of these  
notes)

part of each where say  
is possible) & there were  
in a little pocket. all  
in white loam.

The upper green loam  
contains numerous nodules - especially  
in upper part.

The irregular scaly surface  
above blue loam is where  
I scraped a little of  
yellow loam.

It is lower part of yellow  
loam.

Fossils are in both  
upper & lower iron streaks  
in blue loam.

Some layers show on  
the side of cut.

Fossils are abundant only  
in upper two feet of blue  
loam below lower iron loam.  
Below that there are black  
streaks for 2 or 3 ft, &  
this probably belongs

to the greenish layer. Fossils like *Ammonia*.

July 24 - 1904  
Johnson co

all the territory NW  
of SW cor of sec. 17 - Monroe  
is Iowa drift. This is  
exposed along road, especially  
on slopes. At top there  
is usually a sandy  
loam. Thin - & under it  
usually a fine sand.

XXXVIII

At SW cor. 17. There is  
a low hill on top - sand  
how high, thick. The

country in S. 1/2 of 17 & 18 is  
much rougher than that  
North, in Round Bay.

XXXIX

In sec. 20 - N. of road (N.E.) the  
Iowa drift appears on the  
slopes, & the high ridges  
are Iowa, but capped  
with loam. This is a

At S. corner of fork of  
road. Several feet  
3-6, of Iowa drift like  
loam, & slightly capped  
with loam in part.

The road from fork to  
Verba runs over hill  
more than 100 ft high.

XL

In the N part of sec.  
26. the road shows more or  
less sandy type gravel.

XLII

Fine sand appears everywhere.  
On township road between  
Monroe & Johnson is a hill  
very steep & high.  
Iowa drift is exposed  
all along slope, & is loam  
or more sandy trace, at top.

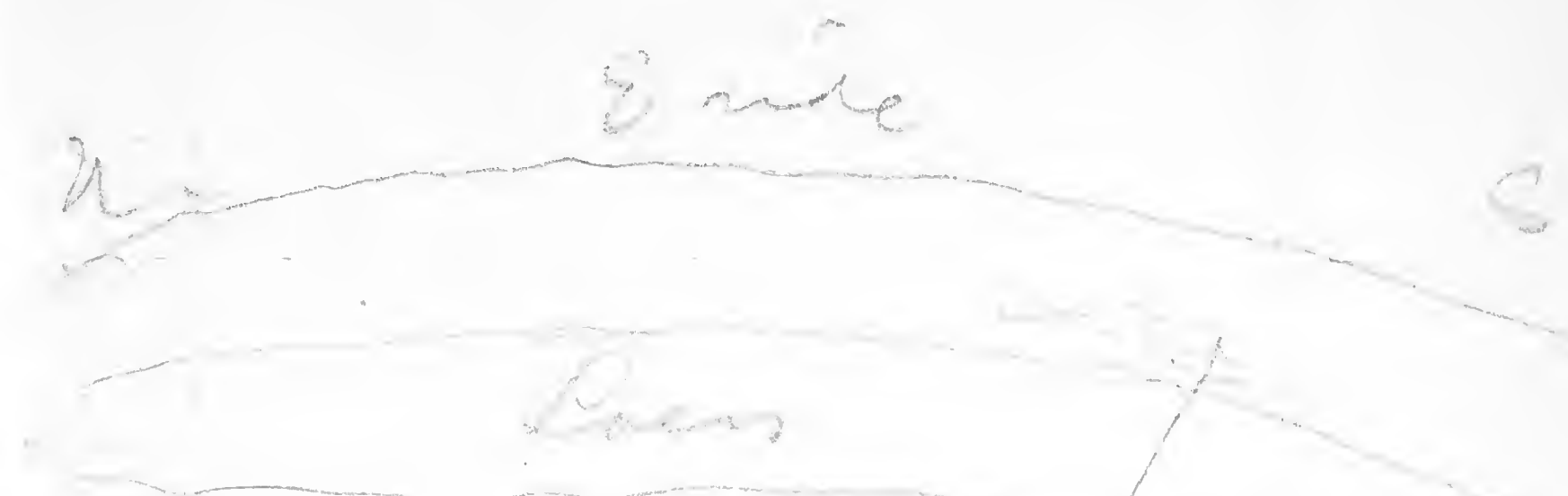
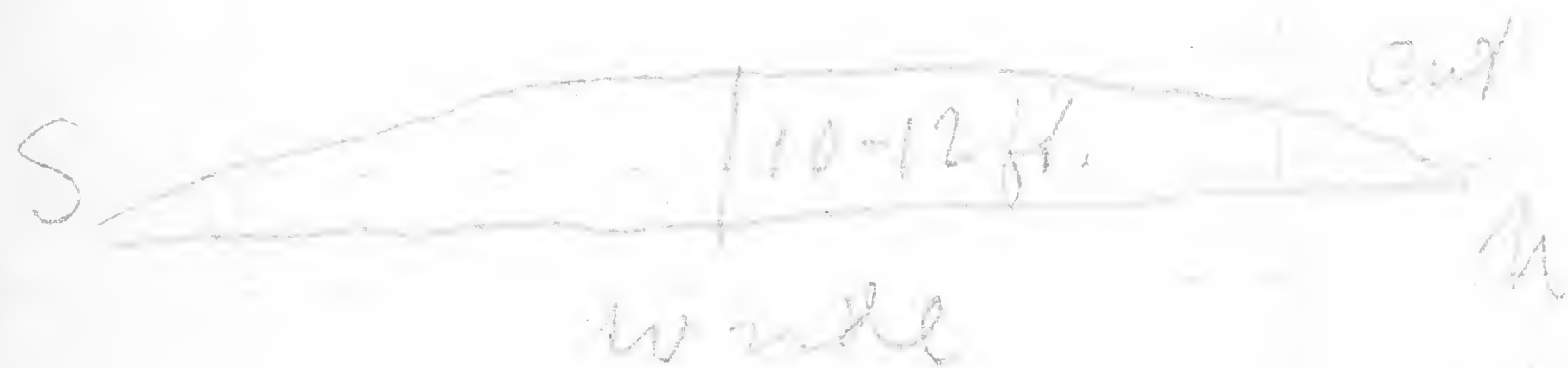


Compulsory narrow cut along  
Electric. — going N.

1 1/2 ft. new loess (lobular)

3 ft. sand. reddish  
4 to 5 ft. sand (fine)  
streak

about 6 ft. exposure  
blue loess with  
fossils & some streaks



Some of the sand is  
laminated with some  
parallel bands —

The first cut shows  
same arrangement of  
sand & loess.

See sample X. Vandy, surface



Even run out is right.  
This is big cut S.E. of Confield's  
Crowning.



122  
Carroll  
Halter  
Manning

12. 10. 1960

1990

Oct. 3 - 1924

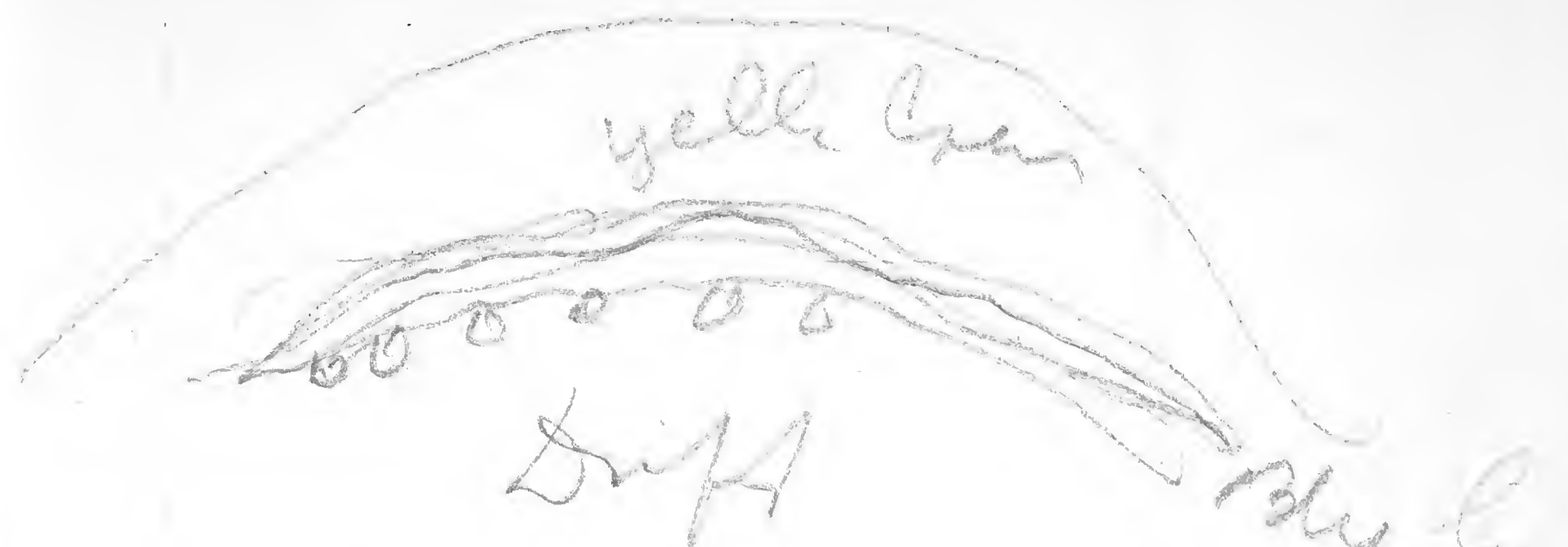
C. G. W. Ry

From Carroll to Harlan

Carroll & Halbur

(see next page)

123



The drift in me has  
many boulders along  
top line.

5. Rep/ small and about same

7 11 11 11 11 11 11  
This is 6 min out from  
Carroll.

10 The next is a deeper cut & shows about same with boulders along line.

May 9<sup>th</sup> at Overheart Bridge  
Clear but not  
clear.

14 Nest near L<sup>2</sup> overhang  
bridge - shows depth  
below.

15 Next long & low - not clear  
shows drift

16 Next just below road  
& next a little  
below, are not  
clear -

The last is long &  
overgrown - just  
before Harbor.

142<sup>On</sup> Harbor to Manning.

1/2 mi out - good cut  
shows drift, with  
boulders on line, &  
yellow loess - with  
more a less blue  
loess.

2<sup>nd</sup> cut same.

3<sup>rd</sup> small - not clear.

4<sup>th</sup> large (overhead bridge)  
shows drift, the blue  
yellow loess thin

5<sup>th</sup> & 6<sup>th</sup> shale

7<sup>th</sup> (a good ways)

Small - grass

8<sup>th</sup> small - grass.

9<sup>th</sup> - not clear

10<sup>th</sup> " "

11<sup>th</sup> - small - just after  
crossing N. & S. road -  
This is within a mile  
of Manning.

Manning to Botna

A few cut, no large  
ones, & none showing  
clearly from car  
Look like yellow loess.

Botna to Iarvin

cut 1 (at road) fair

" 2 - not clear

" 3 - loess only?

" 4 - small.

" 5 - "

" 6 - shows red  
band & blue loess?

This is about a mile  
from Iarvin.

" 7 - In Iarvin - over depot  
overgrown -



# From Irvine to Kirkman

- cut 1-2-3 small cuts  
near Kirkman (4 mi.?)  
cut 3. 2y. larger & nearby.

# Kirkman to Harlem

cut 1- <sup>small</sup> in Kirkman - overgrown

" 2 - small - "

" 3 - low - "

" 4 - quite large - "

" 5 - " "

" 6 - " "

" 7 - low - long.

" 8 - not clear -

cut 9 - large -

" 10 - low - small.

near highway.

at Harlem along  
C&W. H.P. CRHP  
depot, & along road  
leading up town  
is a cut 18-20 ft  
deep.

The upper 8-12 ft  
is yellow loam &  
this shades below  
into blue loam  
with orange iron  
blotches - both  
have fossils, &  
a few nodules.

The line between  
is not sharp.

See shells & samples of clay.  
The shells in the loam  
are more fossiliferous.  
This yellow loam is thicker  
toward the S.W.

The big bank SW  
 of road has about  
 6 ft of blue loam upon  
 above that about  
 4 ft of mixed loam  
 with a lot of black  
 spots in it & above  
 that about 15 ft  
 of yellow loam  
 with some shells &  
 a few irregular  
 all parts have  
 shells & the loam  
 streaks up.

Notes. Nov. 20-1904<sup>129</sup>

From Eagle Grove to  
 Omaha via C. & N.W. Ry.  
 Flat Wisconsin plain  
 to near Council  
 In the first cut below  
 Council the Kansan  
 is strongly oxidized -  
 in most of it over a  
 ft. & toward S. end  
 much thicker.

2<sup>nd</sup> cut ~~along~~ along Harlan show  
 no oxid. loam below  
 These are two first cuts  
 out beyond Harlan  
 to the North.

1<sup>st</sup> cut S. of Harlan  
 In Harlan there are several  
 (from 1000 ft. down to 100 ft.)  
 Less than 100 ft. out of Harlan  
 8-10 ft. deep.

2<sup>nd</sup> cut - very good loam  
 3<sup>rd</sup> " 15-25 ft. deep  
 all yellow loam of stone rubble  
 (skip next page)



Nov 17

7<sup>th</sup> Day - N. R. D. P.

(Go back one page)

This cut is along short distance  
beyond no 2.

4<sup>th</sup> at  $\frac{1}{2}$  mi farther out  
deep - 14.00 m. down

6. Went 1/2 mi. beyond to the  
1.5 ft. deep yellow loam.

6<sup>th</sup> at market end of  
deeply large &

7<sup>th</sup> nodules are plainly  
just a little larger but  
is lower much & shows  
very many nodules.  
8<sup>th</sup> A double bed is  
cut by the lower reef.

Clay, at 2<sup>nd</sup> westward  
bridge.

9th 1/2 in - began in 5-  
10 ft deep - very shallow  
down to 100 ft. and

on payed out next  
overhead bridge ~~mouth~~  
~~and~~ This is follow

- closely by two more  
 10<sup>th</sup> + both yellow & with  
 11<sup>th</sup> nodules  
 12<sup>th</sup> - 13<sup>th</sup> are low cuts  
 not far beyond -  
 13<sup>th</sup> another low cut at  
 next road crossing.  
 14<sup>th</sup> another low cut  
 at next cross road.  
 15<sup>th</sup> - a small  
 made out from Tennant's  
 15<sup>th</sup> low cut at end  
 of road just  
 before Tennant's  
 16<sup>th</sup> - at new depot  
 road to long low  
 yellow cut.  
 at 467 m  
 17<sup>th</sup> - 8-10 ft deep  
 low - 9 miles long  
 1/4 mile - 469 1/4  
 18<sup>th</sup> low cut just beyond  
 but cross road &  
 just before 470 m.

- 19<sup>th</sup> just beyond 470 m.  
 8-10 ft  
 20<sup>th</sup> 1/4 mile beyond yellow  
 21<sup>st</sup> near  
 22<sup>nd</sup> grayish not far beyond  
 23<sup>rd</sup> - 15-18 ft. clay not  
 far from 22.  
 24<sup>th</sup> - heavy cut  
 25<sup>th</sup> deep but short  
 26<sup>th</sup> not large  
 27<sup>th</sup> at 472 long deep  
 cut  
 28<sup>th</sup> at overhanging bridge  
 shows much red below  
 29<sup>th</sup> not far. shows  
 some red.  
 30<sup>th</sup> - small - before  
 cross road. &  
 a little bit of 474  
 1<sup>st</sup> - small cut.  
 (475) (Waggle cut)  
 32<sup>nd</sup> - Rather deep - shows  
 gray & black soil.



33. Low cut at 2 x 10 road

34. 2 rows cut. nodules.  
 Attention: Some red 476' (a small cut 1/2 m. by) about 477.

35. Medium cut just beyond 476, (Menden)

36. At 480 - double cut yellow loess.

37. Small cut 481 1/2 (school road at 482)

38. Road beyond 483. The cut (short) which shows some reddish loess.

39. Near a deep fine cut

40. " " " "

41. " " " "

along edges of Oxid. L.

42. A slight notch to it,

loess

43. Beyond cross road

a large cut.

Strip 100 ft. from 43

no. 1 - Dipping - (side road)

Top of cut -

cut on road 7 ft.

Proved 2 ft + more

sample 1 -

At 10-4 in got Saccaria

at this point the loess

seems to be a little harder

there are little many

nodules.

Sample 2 12 ft.

1/2 ft fine light sand

loess below this

This cut is on N. side of second ridge N. of Dipping.

7 ft

Side road

loess cut

below loess

where the loess near

the top (2-3 ft)

shows imperfect

lamination.

## No. 2 Cut. XXX

A little ridge just N. of  
main road, then a long hollow,  
then a high ridge (= No. 3)  
at little ridge, which  
is now. The brown is  
near surface. At foot  
of hill in gutter on W.  
side of road just N. of  
main road blue Kansan  
is visible. The brown  
appears about 1 ft. - thin.  
then "colored" rock.  
On this small ridge is  
thin veneer of loess about  
one on N. side, & 4 or 5  
ft deep on S. At top  
about 1 ft. from surface  
took sample #2.

cut  
XXXI

No. 3 (sample #1) was  
taken just foot of second  
higher ridge going N.  
The brown was at least 7 ft  
deep on this lower

slope, & showed laminations  
irregular surfaces  
would break and the  
joints - This is N. of  
small ridge but really is  
part of same

5 ft  
No. 3  
Kansan

cut  
XXXII

at 4. on S. slope of  
long ridge sand fine  
sand, banded, & some  
less some brown soil  
in loess - brown  
be there on ridge

XXXIII

at 5. - brown only was  
found a number of loess but  
a little higher up there is  
fine sand. All the sand  
is fine - sand dune!




~~XXXIV~~ One of the highest points  
is at no. 6 - on the road.  
is here sandy, with no cut  
i.e. sand - on the surface.  
N. or road on lower knoll  
& ridges.

All the sand is fine, very  
hard & fine material.

~~XXXV~~ On S. side road at no. 7

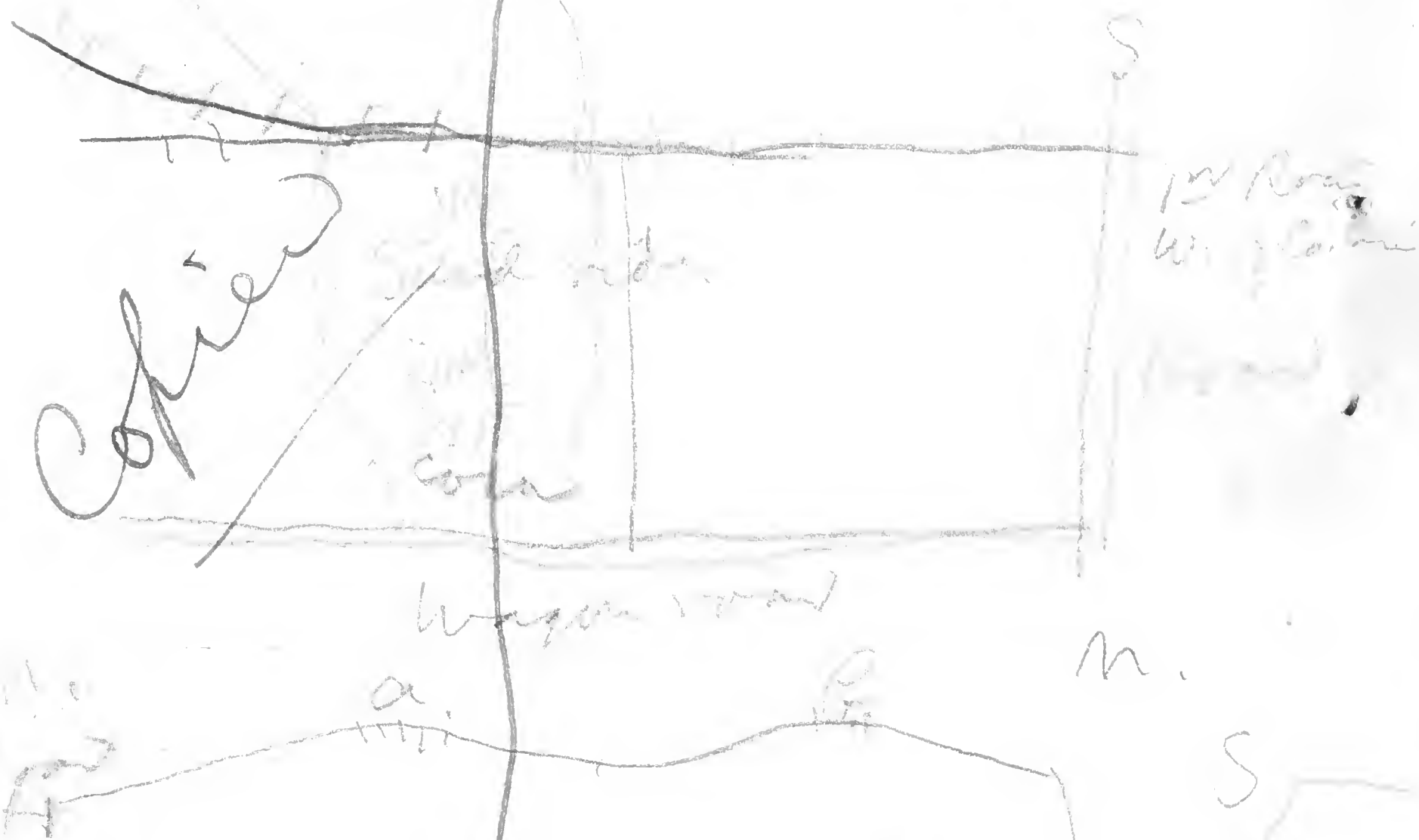
a slope

  
The fine sand grapes  
gradually into loess.

Loess appears at surface all  
the way to no. 8. at 8

~~XXXVI~~ there is fine sand again,  
with just a little soil like  
the transition from fine sand  
to loess. The sand is all  
fine.

It is sandy into Iowa County  
About a mile W. of county  
line there is quite a ridge  
of sand running N. & S.  
The first big cut W. of co. line  
is through a big sand ridge  
of very fine sand.



No. 1 at a & b. are clusters of  
of better corn than appear  
either between or on S.W.  
slopes. On W. slopes  
the corn is better. The sand  
at top is finer if anything,  
& there are more small plants  
like young mollusks, etc.





No. 5

No. 12 is the "Quarry".  
At the E. end of the quarry  
till is carboniferous.

455 ft. from base

Kansan 2 to 3 ft.

*Copied* carboniferous  
10 to 12 ft.

not much of any matter

7 or 8 ft. north side with  
fossiliferous (see notes)

about  
on N. side

10 ft. shown  
with fossils

4 ft. from

4 ft. from

Carb. rock

Above the brown on N. side  
is a fine material which  
is sandy & dark (brownish). It  
grades into lower brown.  
See sample #2 & 3 for best.  
Above this is about 3 ft.  
thick. Dark & fossiliferous  
(see 12 b) which grades  
upward into lobular brown.  
Fossiliferous part about 5 or  
6 ft. Lobular part  
3 or 4 ft. (see 12 c for  
lobular).  
The sandy layer is laminated  
in real brown manner.  
Between the Kansan & brown  
there is a hard laminae  
(really, rocky - so compact is it)  
layer with much iron  
about 1 ft. thick - evidently  
an old surface?  
Lime nodules are very abundant  
on N. side. Limestone bed below  
with iron streaks.

The Kansan drift thin  
 out so that at W. end of  
 exposure. The Iowa drifts  
 on the Carboniferous rock -  
 a little to the east of that  
 exposure only ~~about 10 ft.~~  
 thick. Above it is a  
 thin layer of  
 gravelly sand. This  
 corresponds to the  
 hard laminated layer  
 already noted on W. side.  
 This is in all probability  
 Buchanan gravel.  
 That sandy layer (clayey) in  
 upper part of Iowa shows  
 upward into loess.

No. 6 No. 13 is lying in West  
 Iowa Pasture Group  
 mounds no. 5

The first nearly two feet  
 was dark brown stuff -  
 below that compact gray  
 loess into which we

bores 4' 9" I saw sample  
 13. The mound was covered  
 over & now pastured.

No. 14 - a long ridge mound in

No. 7 Jos. Buck's group of mounds  
 in sec. 12. Mound 14  
 top was loamy, but became  
 coarse like fine sand, but  
 at 7 ft. (see sample 14)  
 it was quite loose.

No. 7

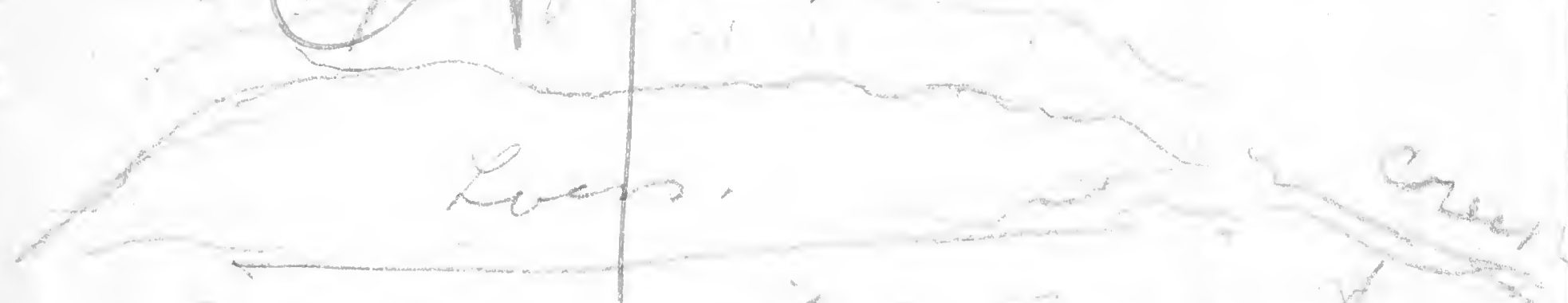
and Sec. 12 at  
 14 The mound was  
 full of loess at top, but  
 just a thin layer of  
 loess a little Iowa  
 drift, fine gravel, etc.  
 appear in road.

The highest point at or  
 near NW cor. Sec. 19 is  
 120 ft. above river  
 plain (barometer)



no. 8.

no. 5 - open bank - less  
than 1/2 way up hill on  
N. side of road pp.  
J. Schuster's farm -  
typical loess - Exposure  
only 15 ft high



There is a section of a road  
of spurs. See nodules, shells.

no. 9 clay.

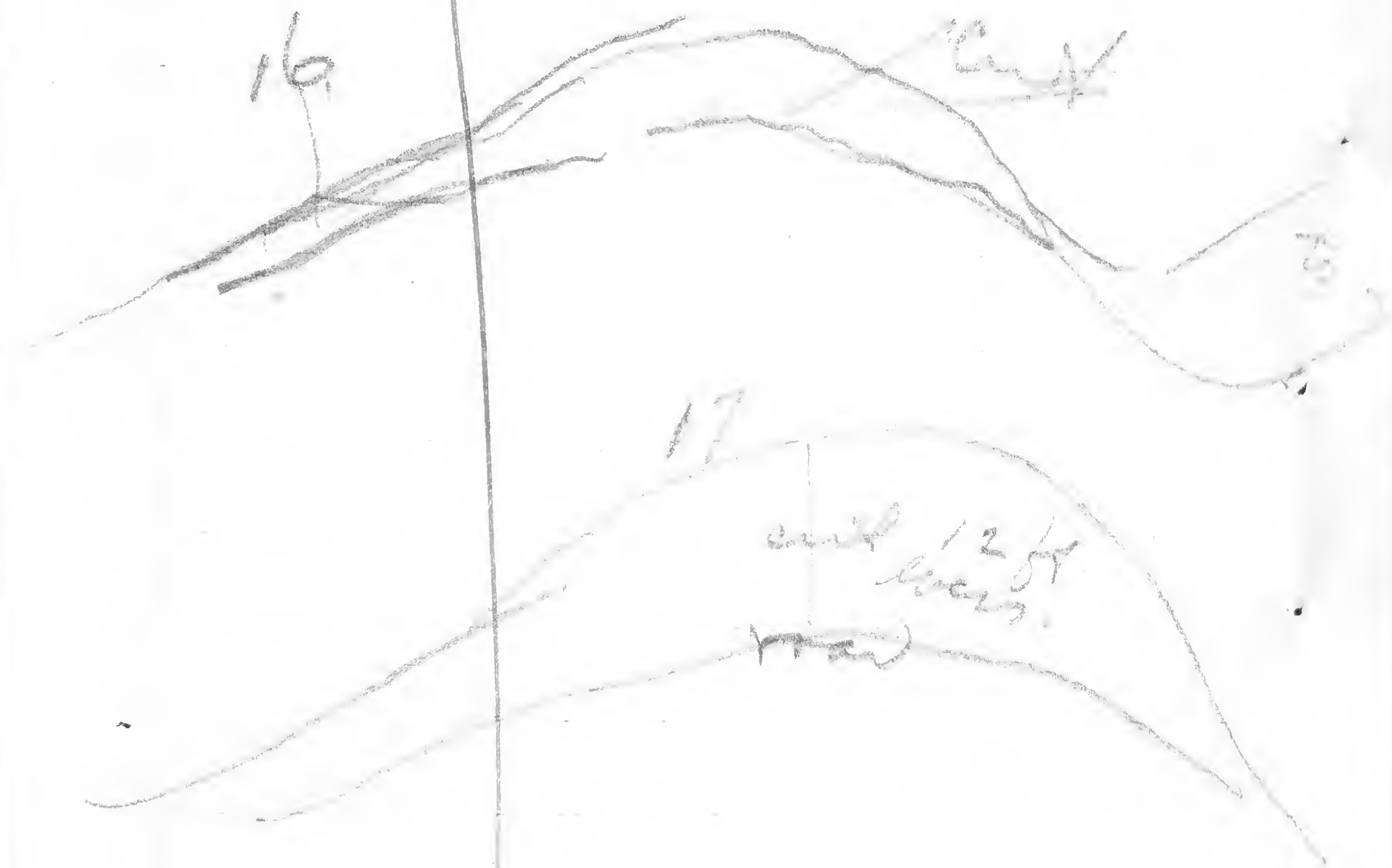
no. 16 is loam like 15,  
(see shells) but deeper,  
this & next cut are 6 or 8  
ft. deep & only 10 ft -

no. 10 see fossils

no. 17, loess. sharp ridge -  
got fossils, very few nodules  
See samples

no. 11

at no. 16 - Javan drift  
in road -



new center  
In sec. 8. Sandy ridge  
has been blown away  
about 12 ft. within 20  
yrs. - W. F. Brookschink.  
There was timber & this  
was blown over & timber  
& blown away.

No. 12

In S.E. cor. Sec. 10. Loess -  
appears at surface, but  
more abundant in next ridge  
E. just a little below surface  
(1/2 mile E.) but top of  
this ridge was, however,

No. 13

at 19 - lowlands - two  
bars of glacial drift with a  
little loess - then sandy  
in cut in place  
at top of

No. 14

No. 20 is a high ridge,  
covered with slightly sandy  
loess. But gophers  
on some high up fine sand  
the highest point is about

5 or 6 mds - E. & here the  
gopher show clear  
to the north & W.E. is  
a fine view of Iowa plain

July 24

The hill (bluff) at E. Amana  
is low & evidently not  
morainic. The hills to  
N.W. of E. Amana are  
rounded low hills, somewhat  
sand dune in general  
form, but not steep.

N.W. county line the hills  
are pretty high, & there  
are fine sandy places near  
the tops; but the hills are  
covered at top with the sandy  
loess noted before.

A mile north of Pomeroy line and  
the hills become less pronounced,  
though it is not level.

There is <sup>decid. important</sup> loess up to several inches  
on west bank of Johnson co -



150

151





144

S

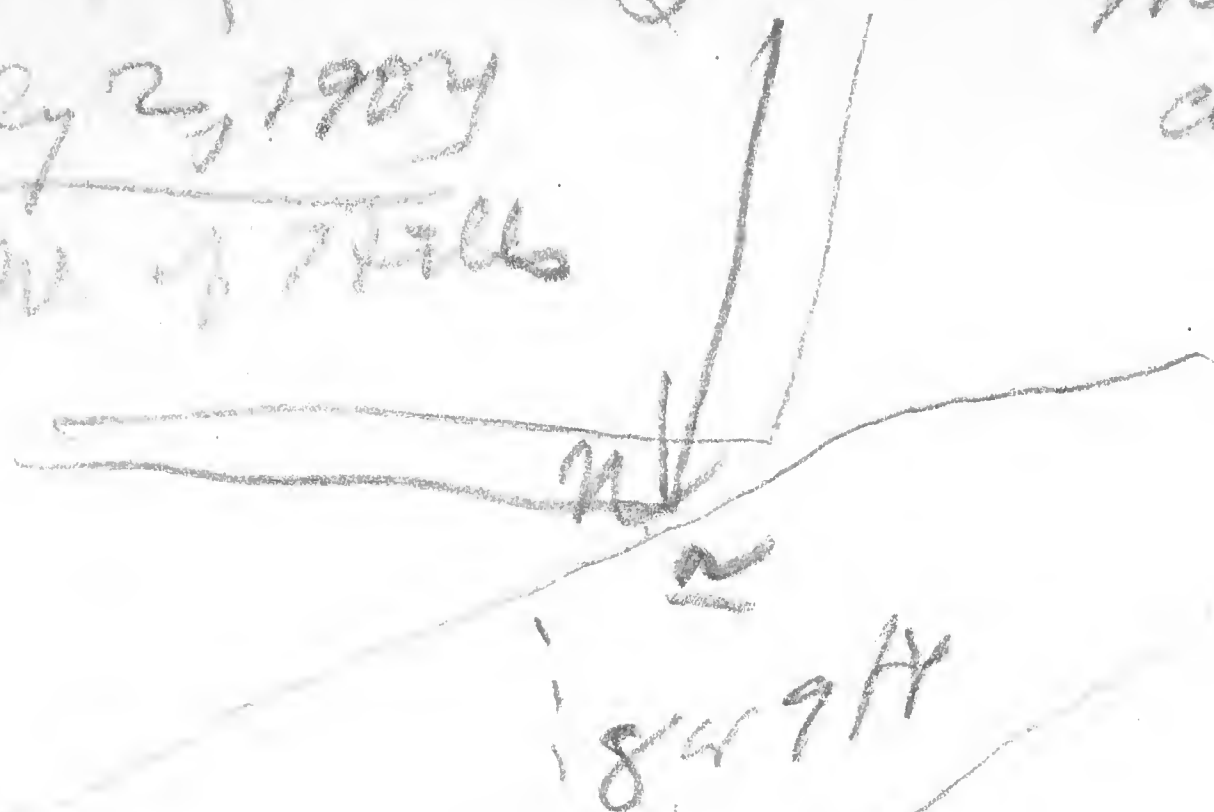
Marked

July 2, 1904

cut XXVIII

S. N. of Hills

on map.



Limestone, with  
many iron tubes, some just  
forming or new roots.

Limestones on N. side  
more common -

Shells very fragile

Upper 2 or 3 ft yellow  
loam - no roots or tubes  
shows imperfect

lamination when broken  
Top of bank at (a)

about 12 ft. above bottom

The road N. of Amherst

is sandy all the way to

the bridge. Most of the way

it is fine sand, but

on top of the highest ridge, just

145

before you start down to the  
river, shows small pebbles &  
boulders <sup>in gutters</sup> - toward drift -  
All is overlain with  
fine sand & this where  
plants are abundant is  
quite bog-like.  
At the foot of the hill  
blue Kansan's dark  
boulders appear.

To see if a pine we see  
grove - l. Hawthorn -  
Wh. Pine, Norway Spruce  
Scotch Pine -

(See back of pinned  
pages - Eagle for 3 Books)

44 Next nearly deep cut

45 " " " " " "

Of western bridge -

46 - Shallow right nearly

47 very large cut yellow  
rocks.

48 & 49 Two small cuts

50. A large cut - grayish

below, very shallow

above. This is

just beyond the station

51. A large cut - very deep

just beyond depot

52. A large cut - very deep

53. A large cut - very deep  
cross road.

54 - Large cut -  
at 488.

55. A large cut just  
beyond

56. Medium cut

57. Shallow

58 - Fine cut at 484

59 - Low cut beyond cross road

60 - " " " " " "

61 - Deep cut - near

just beyond cross road

62 - Low cut

63 - " " " " " "

64 - Cut 491 - very deep

65 - Low cut just beyond

beyond cross road.

66 - Just beyond cross road

cut - very deep

(Station 409) Gilliat

67 - Medium cut 3-5 ft

gets deeper - below

68 - Shallow cut - near road

69 - A good big cut

70 - Shallow

71 - Medium cut just beyond

cross road

72 - Fine cut - grayish

below

73 - Fine cut -

very deep cut - below

393 1/8



Miss Margaret Slides  
318 Vine St. Traverre City, Mich

- 74 just before 394 at  
Orethia bridge  
9000 cut
- 75 Alex V. near my  
large needle cedar
- 76 - small - near
- 77 - small - near
- 78 - small - near
- 79 Big deep cut
- 80 Small cut
- 81 at 496 near  
deep cut
- 82 Near short deep
- 83 - " - " - "
- 84 - " - " - "
- 85 - " - short - deep
- right at Gillias
- just N. of station
- 86 low cut in wet large  
beyond depot -  
large - regular

- 87 - near deep and regular
- 88 Oak large - double
- 89 Alex deep - near
- 90 " " "
- 91 " " "
- 92 " " "
- 93 " " "
- 94 " " "
- 95 " " "
- 96 " " "
- 97 " " "
- 98 " " "
- 99 " " "
- 100 " " "
- 101 " " "
- 102 " " "
- 103 " " "
- 104 " " "
- 105 - large - deep
- 106 Medium - long
- 107 short deep
- 108 - deep large beyond depot
- 109 - 110 Orethia - a Bluffs



153

Hot Sun - & charcoal

1



